

Final Project – India

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Introduction

Being the second most populous country in the world, India is seen as a rising star on the firmament of world economies. Its increases in GDP per capita (Fig. 1) in the past two decades has given India hope to establish itself as a global superpower (The World Bank Group, 2019). Foreign investment into India has also seen a rapid increase in the past decade (Fig. 2) (The World Bank Group, 2019). A deterrent to foreign investors and a damper of growth is the high perceived rate of corruption (Transparency International, 2018). This weakens institutions and hampers future economic growth (Ebben & de Vaal, 2009). Future policies success is contingent on India getting a grip on its weak institutions.

One key driver of this economic boost has been the trade liberalization in 1991 (Goldberg & Pavcnik, 2016). A key challenge to India is that of the environmental degradation brought about by the sudden growth in conjunction with the country's insufficient infrastructure. One way this is most visible is in the unreliable energy grid that lacks the density and strength to support growing industrialization. To combat environmental degradation and of energy grid performance the government should harness the advantages of India's climate. With about a thousand hours of sunshine more than, e.g., Germany, India is a prime location for solar power (United Nations Statistics Division, 2010). While China dominates the global solar market, in 2010, India put in place the Jawaharlal Nehru National Solar Mission – a resolution to ramp up India's solar power output to 20 GW by 2022 (Ministry of New and Renewable Energy, 2019). Prime Minister Modi upgraded this pledge to 100 GW in 2018. As part of this initiative, India imposed a 25% tariff on solar panels coming from China – who made up 89% of solar imports in 2017 – and Malaysia (Upadhyay, 2018). It was justified with a decrease in domestic production from ten to seven percent of solar panels from 2017-18. A large part of solar installations is supposed to be driven by foreign investment into large scale solar parks (Power Technology, 2018). However, a key part of the strategy is to include households in energy production which, however, is hindered by the high capital cost.

This paper therefore argues that India should firstly, improve the quality of its institutions by moving against corruption and stop protecting its solar power industry, provide an interest free loan to

encourage household investment, and impose a mandatory level of solar installation tied to foreign capital investment.

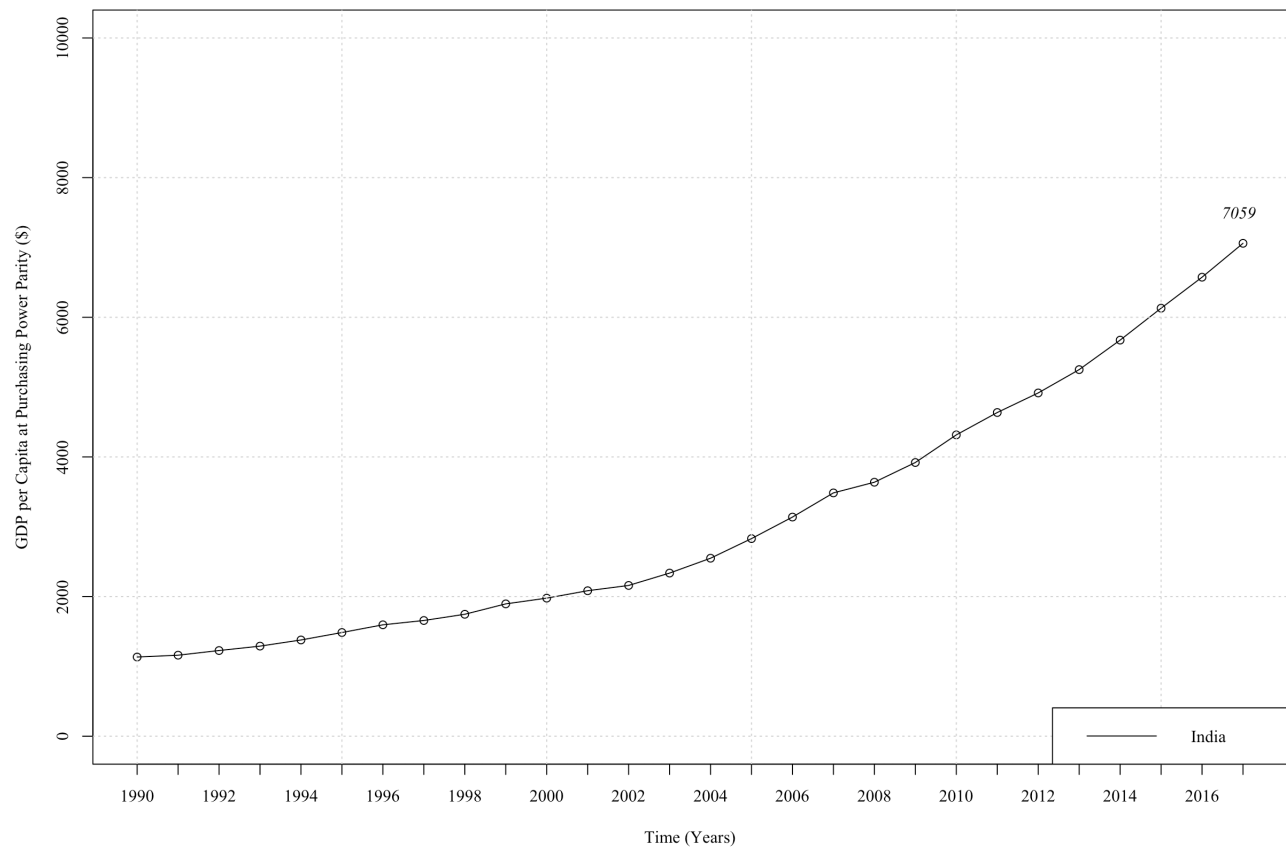


Figure 1. GDP per capita at PPP in US dollars rising since the trade liberalization in 1991. The increase in p.c. GDP rises with a positive rate (The World Bank Group, 2019).

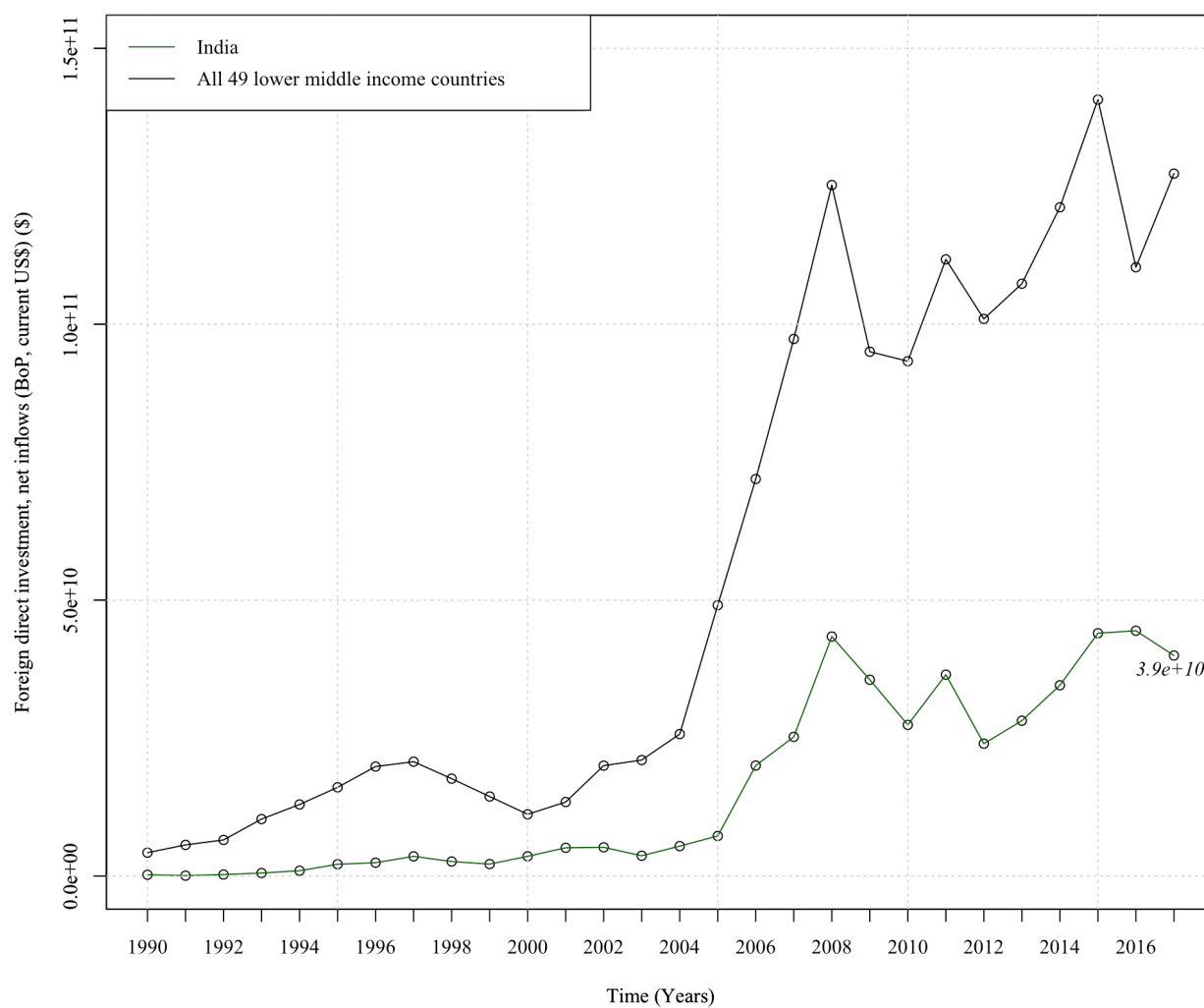


Figure 2. FDI in India compared to the aggregate of the other middle-income countries. Investment has increased significantly compared in the past 15 years with India making up a significant proportion of the aggregate from 49 different countries (The World Bank Group, 2019).

Collective corruption

India, following the institution hypothesis, has a dark future ahead as systemic corruption cripples the nation's chances of long-term success.

The institution hypothesis argues that development outcomes today are predicted by the strength of its institutions in the past (Acemoglu, Johnson, & Robinson, 2001). A key factor for the strength of institutions is the quality of property rights and the size of elites. Property rights that incentivize investment were shown to have a positive effect on economic development. Consequently, if India wants to be successful in the future, it should invest in strong institutions now.

Corruption weakens property rights and fosters inequality in India. The country was ranked 81st on the corruption perception index in 2017 (Transparency International, 2018) indicating that corruption is a considerable concern in the country. Institutions are worse when corruption is prevalent as it means that tax money is being evaded, elites circumvent the rule of law by bribery, and property rights are less enforced which harms long-term growth (Ebben & de Vaal, 2009; The World Bank, 2018).

Corruption in India can be seen as a collective action problem (Marquette & Peiffer, 2015; Marquette, Pavarala, & Malik, 2014). I.e., agents see corruption as so widespread that a single person acting morally will not make a difference as everybody else is corrupt, and thus the agent is punished for moral behavior. Hence, every person in the system has to make a collective move towards less corruption. As indicated by the corruption perception index, people believe that everybody else is corrupt making it seem like the only viable method. How high 'real' corruption in India is difficult to quantify as corruption is – as most illegal activity – undocumented.

However, behavioral policy changes the frame of reference Indians have on corruption through campaigns similar to those in against overly high alcohol consumption on US college campuses where interventions against perceived drinking norms include giving students the real rate of drinking (Palmeri, 2011). Although data on the real rate of corruption is sparse, there is no need for such real data for policy. We merely need to set some anchor that corruption is actually much lower in the immediate social surroundings to invoke conformity (Kahneman, 2011). Hence we can change the perception of corruption

as a socially necessary activity. For those means, billboards can be put up creating a new frame of reference. E.g., “Do you really want to be the 1 corrupt out of your closest 10 friends?”¹

These interventions will not only be cost effective but also change the frame of reference towards corruption and hence move the system closer to fixing itself by mitigating the negative impact of conformity on corruption. As a result, the following policies have a higher chance of being successful.

Advantages from trade

Trade is widely regarded as beneficial by economists as it enables a more efficient allocation of world resources, lower prices, more variety, and spread of technologies. Countries act on their comparative advantage and produce what they can produce with lower opportunity cost than other countries. When they trade their products with what other countries are more efficient at, both countries move their combined production possibility curve outwards (Fig. 3). I.e., they experience an increase in welfare. Tariffs, conversely, impose a tax on imported products. Taxes are passed at least in part on to consumers by producers, and this is also the case for tariffs. In trade, tariffs, therefore, lead to a deadweight loss of welfare by the additional cost of increased domestic production and the lost consumer production from the consumers who previously could have bought the product at a lower but now have to pay more this price and the additional passed-on tax.

India’s tariff on solar panels is unreasonable when observing the costs of protectionism. India’s economy is largely agricultural and driven by its low cost of labor. If it seeks to make the shift in economic development, improve its standard of living, income, and achieve some independence from commodity prices, it will need to industrialize. Industrialization in the past was driven by reliance on fossil fuels. With climate change and fossil fuel depletion, India needs to readjust its energy mix towards renewables now. Solar power is the obvious first choice as it is relatively easily distributed and has high efficacy in a sunny

¹ #conformity: I use my analysis of adverse conformity effects in the context of corruption to devise a strategy that mitigates the impact of the collective action problem behind corrupt activity. Later in the assignment I use knowledge of social proof, and reinforcement of reference effect to devise my policies.

country like India (Power Technology, 2018; Ministry of New and Renewable Energy, 2019). Therefore, protecting the Indian solar panel industry hinders future development and an opportunity for solar technology to spread. The long-run advantages from energy independence from fossil fuels and trade are not outweighed by helping out inefficient domestic producers. Besides, technology development is a driver in economic growth as predicted by the Solow growth model and, hence, learning from the Chinese will be beneficial. Therefore, the tariff should be abolished to make India into a greener and more sustainable economy in the long run that can source its growth from its sunny climate.

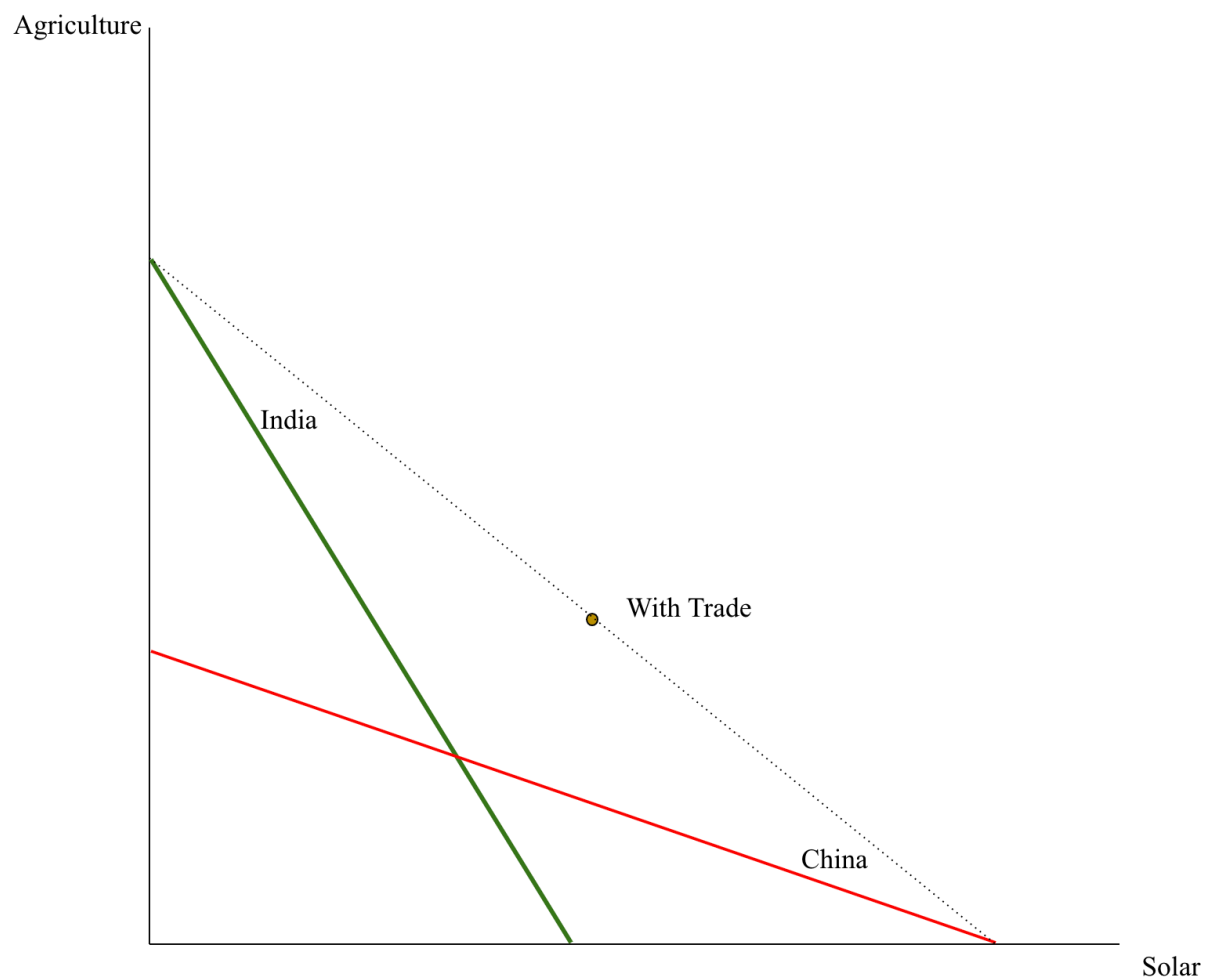


Figure 3. India and China can gain from trade. A model production possibility frontier for each country is shown. China (red) has a comparative advantage in production of solar power technology. India has a comparative advantage in agriculture. If they trade, they can each have more combined than what they could produce by themselves. The PPFs are not drawn to scale and only illustrate the theoretical point.

Learning from the 100,000-roof initiative

To enable nation-wide implementation including rural areas of the country, India should give out interest-free loans to eligible households. In behavioral economics, hyperbolic discounting is characterized by a time-inconsistent preference for immediate gratification, e.g., spend money on a new road now rather than investment in solar power. A way to lower the impact of discounting is to lower the immediate cost of the investment. In this case, the cost of installing and investing in solar power is too high both in absolute terms as well as discounting (Upadhyay, 2018).

In the early 2000s, Germany put in place the 100,000-roof initiative to boost solar panel production and promote household installation (Cels, Jong, & Nauta, 2012). The initiative was successful because it made solar panel installation affordable for German households by offering low-interest loans and the ability to sell back to the grid. Further, installing 100,000 solar panels in German cities made them visible to others and encouraged more people to invest in them. The program was a public relations success and made solar energy an alternative worthy of consideration by creating market incentives for investing into solar energy (Cels, Jong, & Nauta, 2012). Today, Germany is “a pioneer in environmental protection” (OECD, 2019).

India will benefit from a policy with zero-interest loans that decentralizes its grid and brings solar power at a low cost of investment to those households currently without access to electricity or into cities. The zero-interest loan will distribute the cost of investment into the discounted future and lead individuals to invest in the technology. In terms of economic development, reducing fossil fuel is an automatic win for the strained environment and access to electricity raises the living standards and economic opportunities of the 31 million homes still without power (D'Cunha, 2018). Increasing the visibility of solar power will have a snowball effect of social proof that will increase attention towards solar energy.

Controls on Behavior or Capital or both?

With India's economy booming, foreign investors are keen to invest in the economy. Through liberalization of capital inflows economies can grow fast, advance their technologies but at the same time expose themselves to the risk of capital flight (Federal Reserve Bank of Atlanta, 2011). Capital flight occurs when investors become uncertain about market situations and prefer to withdraw their funding from foreign investments. The uncertainty arises from a social proof phenomenon, where investors do not fund a sound investment but what they believe others will also invest in – i.e., asset price bubbles but on a country scale. The herd behavior is bounded rationality as investors are not bidding on the fundamental value of their investment. Developing countries, in particular, are targets of such speculation. India, being a developing country in the past should hence be wary of this behavioral phenomenon with FDI levels rising (Fig. 2). Countries (including India) have protected themselves from the irrational exuberance through capital controls which are restrictions on the quantity or quality of FDI. They are a behavioral policy as they lead to a higher threshold against speculation. Imagine capital flight being an avalanche where one investor pulling out their funding sets in motion a spiral of divesting. If there are higher barriers to stop each individual from divesting the avalanche is stopped at its roots and protect the macro environment.

A capital control that works in tandem with the trade policy of promoting solar technologies would make it mandatory for foreign direct investment that seeks to set up factories or office spaces, to have at least 40% of their power generated by solar power. This creates a significantly higher upfront cost for FDI and hence increases the threshold for investors to pull out mentally (loss-aversion) and because office spaces and their solar panels are non-liquid. Thus, the behavioral woes of investors are controlled through commitment. Additionally, these requirements will increase the domestic demand for solar panels hence stimulating more production from an increase in price and leading to more economies of scale. Consequently, the solar panel industry will develop more in India and abroad and make solar power cheaper overall. Lastly, the regulation makes growth and FDI more sustainable by protecting the environment, which is a long-term economic development goal.

Overall, the capital control would be behaviorally, economically, and environmentally impactful.²

Conclusions

Trade on comparative advantage leads to a maximization of social welfare. Hence, India may want to discontinue with its current protectionist policy. Further, solar energy can promote sustainable economic development, coinciding with improvement of living standards outweigh the losses from trade in the domestic solar industry. Through the creation of strong behavioral policies, India can harness its appeal to foreign investors to create sustainable growth in the long run and a strong solar industry benefitted by its geographic advantage. Underlying these policies are important changes to the strength of institutions endangered by perceived corruption. Through a change in reference, agents may be swayed away from corrupt activities which would strengthen Indian institutions and hence promote economic development.^{3,4}

Words: 1965

² #economicpublicpolicies: Throughout the assignment I assess various policies to justify why they are useful or improve upon them to create a cohesive policy advice for India that has a behavioral policy spin.

³ #behavioraleconomics: I explain the behavioral aspects of decision making such as herd behavior, anchoring, and reference effects and interlink it with my policy advice to incorporate my findings into the policies and objectives of the policies devised.

⁴ #economicproblemsolving: I accurately discuss the institution hypothesis, free trade theory, and behavioral economic theories and combine my understanding in each to devise a policy not just focused on the short-run growth but long-run sustainability. I show my understanding that liberalization of capital inflows can have detrimental costs in the long run even with high short terms gains and hence needs to be balance.

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